Issue September 2018

Ayrshire Astronomical Society Newsletter

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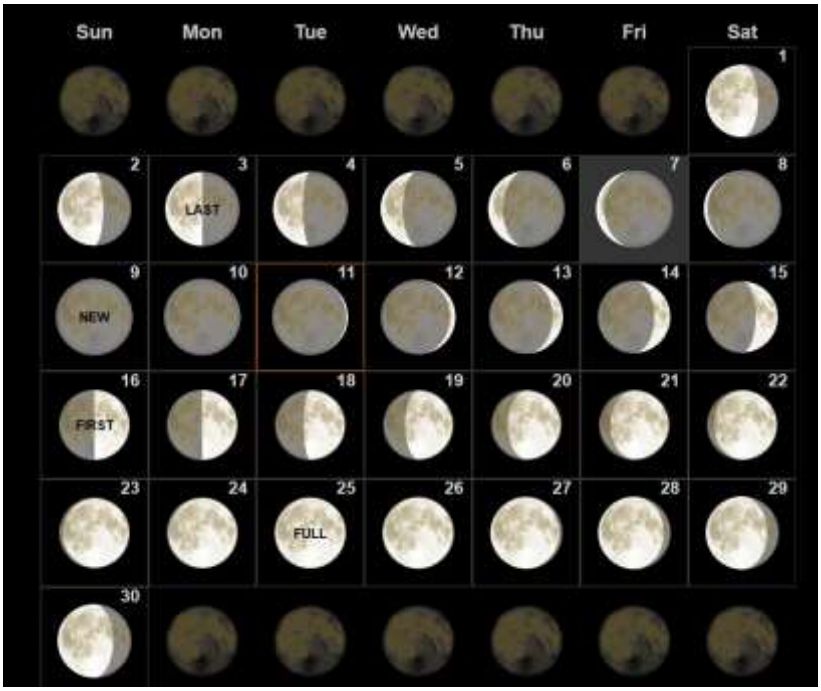
17th September
7pm at
Prestwick Academy

Speaker:
David Warrington
Resident Astronomer at the SDSO
About Lunar XPRIZE

Moon phases for September 2018



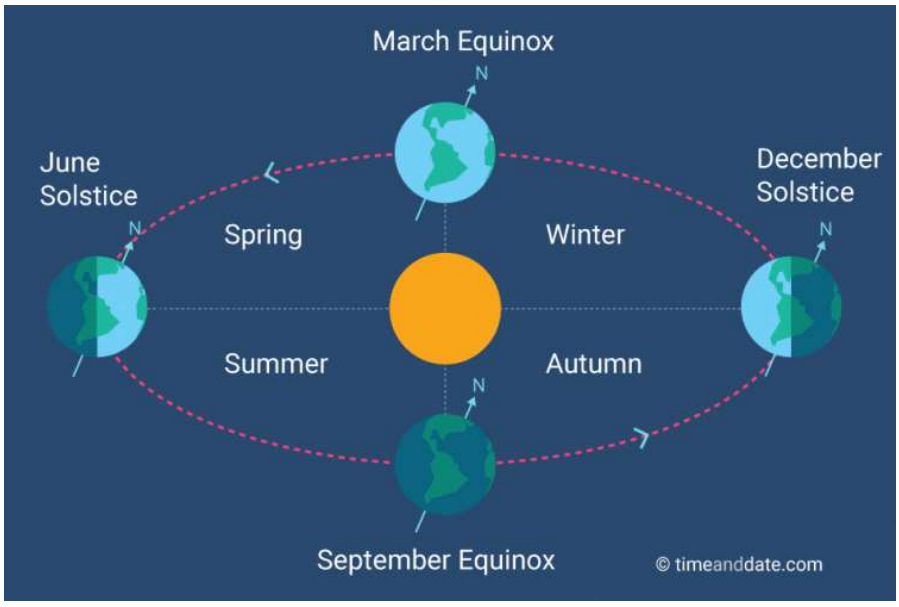
President's Word

We have had an interesting summer with some unusual events taking place. Elon Musk appears to have been reacting rather strangely of late and falling out of favour, due to some odd remarks and actions despite his successes with Space -X, Tesla and Paypal. One wonders whether he is in need of help? I'm not sure what has brought on this change, Musk has always been quirky, but compared to his inspirational achievements this appears not to be a good trend for him. I hope that he is able to overcome this downward turn sometime soon.

Dame Jocelyn Bell Burnell has recently won $3m (£2.3m) as recipient of The Breakthrough Prize for her work on pulsars, helping to map the Universe, and as an inspiration to all in the scientific community. I am not surprised, having met her in person, and knowing how supportive she is in encouraging people to enter the scientific community as a career, she will be donating the money to help students underrepresented in physics to study the subject she has devoted her life to. I'm sure she will enjoy the award ceremony in California this autumn and wish her well.

As Summer draws to a close, many of you will be looking forward to some astronomical activity during the coming darker months, but have you ever considered how Summer and Autumn are divided? Meteorologists split the year into four equal (Gregorian Calendar) periods to help them in their quest in forecasting the weather. This means that Meteorological Autumn starts on 1st September and finishes on 30th November. The Astronomical Calendar is slightly different, where celestial events dictate the seasons for us. The Autumnal Equinox in the Northern hemisphere falls on the 23rd September and marks the day when the Sun crosses the celestial equator heading towards the Tropic of Capricorn in the South, making the days shorter than the night and the temperature cooler. This continues until the Winter Solstice when the North Pole has tilted farthest away from the Sun, the day shortest and takes place on 21st December.

I wish you well during the forthcoming astronomical season, and look forward to meeting you all at the next meeting on Monday 17th September, and our various events running throughout the period! Clear Skies Roger Harman



News and Events

The zodiacal light and the Winter Triangle

This time of year is best for viewing the zodiacal light before sunrise. From dark skies, look for a cone-shaped glow pointing up from the eastern horizon.

Although you can't see the New Moon, its absence from the morning sky these next two weeks provides observers with an excellent opportunity to view the zodiacal light. The strange sight is caused by sunlight reflecting off cosmic dust that abounds in our solar system.

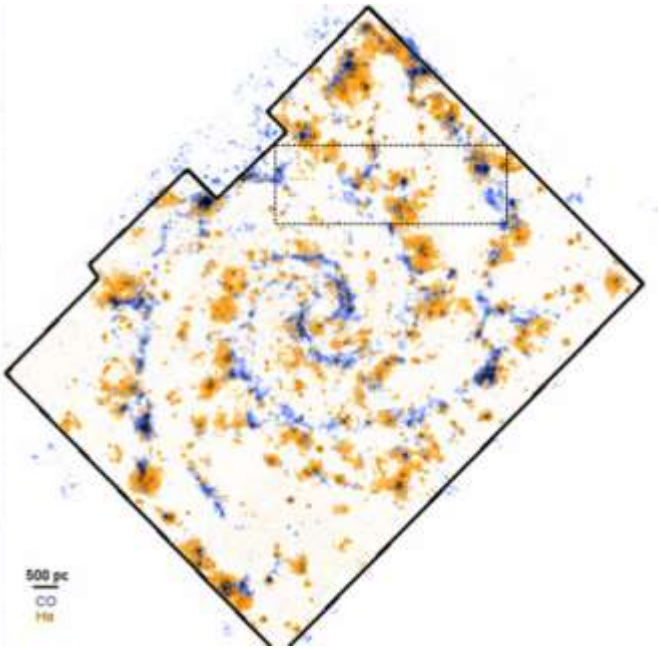
From the Northern Hemisphere, this time of year is the best for viewing the elusive glow before sunrise. It appears slightly fainter than the Milky Way, so you'll need a clear moonless sky and an observing site located far from the city.

Look for a cone-shaped glow that points nearly straight up from the eastern horizon shortly before morning twilight begins (around 5 a.m. local daylight time at mid-northern latitudes).

Seeing Spiral Galaxy M74 in a New Light

A fascinating new image shows how star formation proceeds in the galaxy M74. Kathryn Kreckel (Max Planck Institute for Astronomy, Germany) and colleagues imaged the nearby spiral using the Atacama Large Millimeter/submillimeter Array (ALMA) and the MUSE instrument on the Very Large Telescope.

As the images are able to resolve details smaller than 200 light-years across, the two images together (superimposed below right) show exactly how stars form in the galaxy's spiral arms. ALMA traces millimeter-wavelength emission from the cool gas reservoirs that feed forming stars (blue at right below), while MUSE tracks the hydrogen-alpha emission that comes from star formation itself (yellow at right below).



The spiral patterns seen at millimeter and visible wavelengths don't rotate themselves; rather, they trace the evolution of the wave of star formation that's passing through the galaxy's disk. The blue-colored spiral shows the earliest stages of star formation, while the orange-colored spiral shows the stars, newly formed.

Outreach

19th September Wellington School – Astronomy outreach day

Marc's article

Charles Messier

As amateur astronomers we have all heard of or seen objects like M1, M31 and M42, but just where did the M in these M-objects come from?

It turns out the story goes back to the 18th century and to a French astronomer and comet hunter named Charles Messier. Messier was born on June the 26th 1730, the tenth out of twelve children. In 1741, his father passed away and his care was taken over by his older brother who took him out of school to educate him himself, training him in administration and to work highly methodically, something that would pay off years later.

In 1751 Messier obtained his first job recording the observations for Joseph-Nicholas Delisle, who was the French Navy's principal astronomer and it was he ensured that Messier continued his development in astronomy. Messier's first recorded measurement was of the transit of Mercury on the 6th of May 1753. In 1754 Messier moved on to become a Depot Clerk in the Navy and was able to continue his observations.

His interest in comets was first sparked, when as a boy, he saw the great six tailed comet of 1744. His interest would grow due to an error committed by his boss in 1757. Delisle had calculated that Halley's comet would reappear that year and asked Messier to locate it, unfortunately, he was out by two years. What Messier did discover, however, was a fuzzy object in Taurus that didn't move, and therefore not a comet. Shortly afterward he began to compile list of these static objects to prevent any confusion between them and comets. His first object was Messier 1 or M1, the Crab Nebula, which he described as looking a bit like a candle flame. He would have no way of knowing that it was the result of a supernova explosion in 1054.

As events transpired, he eventually rediscovered Halley's comet on the 21st of January 1759, about four weeks after it had been found by the German astronomer Johann Georg Palitzsch, however, his superior, Delisle, initially prevented him from announcing the discovery, as it contradicted his own calculations. When it was finally announced on the 1st of April some thought it to be April fool's joke. After this event, Delisle recognised his error, and gave Messier more freedom allowing him to dedicate his life to finding new comets.

After this Messier's star then began to rise, first becoming the director of the Marine Observatory in 1759 and then in 1764 he was elected to the Royal Society in London, followed by his inclusion in the Paris Academy of Sciences in 1770. In 1774, he published his first catalogue of 45 objects, though only 17 of these were discovered by him. By 1780, his catalogue increased to 80 objects and his final version in published in Connaissance des temps in 1784 contained 103 objects. All of these were found with telescopes no larger than four inches. His assistant, Pierre Méchain, a man we rarely hear of, is credited with 20. Though don't feel too sorry for Méchain, as he went on to fame determining the length of the metre.

Messier's cataloguing of these objects came to an end in 1786 when William Herschel produced a list of a thousand of them. Herschel had much larger optics than what were available to Messier, effectively putting him out of that business. Messier continued to look for comets discovering a few more to bring his total to 21. Messier passed away on the 12th of April 1817, at the age of 86.

As an astute reader may recognise that the current Messier catalogue has 110 objects, while the last one published by Messier only contained 103. Over the years seven more objects were added, as researchers were able to show that Messier was the discoverer. The final one was added as late as 1966.

His list contains the following:

39 Galaxies

5 Planetary nebulae

7 Other types of nebulae

55 Star clusters

4 Asterisms (groups of stars)

The irony, of course, is that this list of objects for comet hunters to ignore contains many of the most spectacular objects in the night sky (at least those north of -36 degrees) that are accessible to amateur astronomers, with even fairly modest equipment. All that is needed is a little patience, good weather and dark skies.

Member's photographs

Photo taken by Marc Charron

Comet 21P and NGC 1624

It was a difficult shot due to sky glow due to light pollution and the moon. Stack of 82 images taken with 70mm at f4.8, 4 sec each at ISO 25,600. A fair amount of processing was required to remove most of the sky glow.

NGC 1624 is fairly dim at mag 11.8, the reddish glow around it is even dimmer at mag 15 per square arc minute. For comparison the surface brightness of the Crab Nebula is about three magnitudes brighter.

Library

Open for business!

THE LIBRARY IS A RESOURCE FOR MEMBERS -PLEASE SUPPORT IT AND MAKE USE OF IT

The Library list is also available on the website under "links" and can be downloaded

The library is now full up - if you would like to obtain a list or borrow an item

– contact Alex at the next meeting or give him a call on 01563 520887.

Unfortunately Alex does not have email, however messages via library@ayrastro.com will reach him the old fashioned way after a short delay but please contact him directly if at all possible.

THE LIBRARY IS WAITING FOR YOUR CALL!! There are a lot of interesting items to borrow

And finally….

"REMEMBER— WHEN DAYLIGHT SAVING TIME ENDS WE HAVE TO GIVE EVERYTHING A SLIGHT TURN TO THE LEFT."